WHAT IS CLAIMED IS:

1. An apparatus for use on a bottom hole assembly (BHA) for conveying in a borehole in an earth formation, the apparatus comprising:

(a) an orientation sensor making measurements indicative of a toolface angle of said BHA during rotation of the BHA;

(b) at least one resistivity sensor for making measurements of a resistivity of said earth formation during said continued rotation; and

(c) a processor for determining from said resistivity measurements and said orientation sensor measurements a apparent dip angle between an axis of said borehole and an interface in said earth ormation

wherein said BHA has a non-uniform rate of rotation.

2. The apparatus of claim 1 wherein said interface is a bed boundary.

3. The apparatus of claim 1 wherein said interface is an oil-water contact.

4. The apparatus of claim 1 wherein said at least one resistivity sensor comprises two axially spaced apart resistivity sensors.

5. The apparatus of claim 1 wherein the at least one resistivity sensor comprises a

galvanic sensor.

6. The apparatus of claim 5 wherein said galvanic sensor comprises a focused sensor.

7. The apparatus of claim 1 wherein said at least one sensor comprises an induction sensor.

8. The apparatus of claim 7 wherein said induction sensor comprises a sensor having a coil with an axis inclined to an axis of said BHA.

9. The apparatus of claim 1 wherein said resistivity sensor comprises a plurality of transmitter-receiver spacings and further comprises circuitry for measuring at least one of (i) an amplitude difference, and, (ii) a phase difference of signals measured at said plurality of spacings.

10. The apparatus of claim 1 wherein said orientation sensor is associated with a first processor and said at least one resistivity sensor is associated with a second processor, said first and second processors being on a common bus.

11. The apparatus of claim 1 wherein said orientation sensor comprises a magnetometer.

12. The apparatus of claim 1 wherein said orientation sensor comprises an accelerometer.

13. The apparatus of claim 1 further comprising a gyroscope for providing a measurement indicative of an inclination and azimuth of said borehole.

14. The apparatus of claim 1 wherein said processor further determines a bias in said orientation measurements.

15. The apparatus of claim 1 wherein said orientation sensor comprises a pair of magnetometers, and wherein said processor further determines a scale factor relating the outputs of the two magnetometers.

16. The apparatusof claim 1 wherein said resistivity sensor is mounted on one of (i) a pad, (ii) a rib, and, (iii) a stabilizer.

17. The apparatus of claim 1 wherein said processor further corrects an image of said borehole.

18. The apparatus of claim 1 wherein said processor further controls a drilling direction of said borehole based on said apparent dip angle.

19. The apparatus of claim 1 wherein said processor determines said apparent dip angle based on an apparent rate of penetration.

20. A method of determining a dip characteristic of an earth formation, the method comprising:

(a) conveying a bottom hole assembly (BHA) into a borehole in an earth formation;

(b) using an orientation sensor on said BHA for making measurements indicative of a toolface angle of said BHA during rotation of the BHA;

(c) using at least one resistivity sensor on said BHA for making measurements of a resistivity of said earth formation during said continued rotation; and

(d) determining from said resistivity measurements and said orientation sensor measurements said dip characteristic of said earth formation, said determination correcting for a non-uniform rate of rotation of said BHA.

21. The method of claim 20 further comprising using said determined dip characteristic for controlling a drilling direction of said borehole.

22. The method of claim 20 wherein said dip characteristic comprises a apparent dip angle between an axis of said borehole and a bed boundary in said earth formation.

23. The method of claim 20 wherein determining said dip characteristic further comprises using measurements from an additional resistivity sensor spaced apart axially from said at least one resistivity sensor.

24. The method of claim 20 wherein the at least one resistivity sensor comprises a galvanic sensor.

25. The method of claim 24 wherein said galvanic sensor comprises a focused sensor.

26. The method of claim 20 wherein said at least one resistivity sensor comprises an induction sensor.

27. The metod of claim 26 wherein said induction sensor comprises a sensor having a coil with an axis inclined to an axis of said BHA.

28. The method of claim 20 wherein said resistivity sensor comprises a plurality of transmitter-receiver spacings, and using said resistivity sensor further comprises a making measurements of at least one of (i) and amplituded difference, and, (ii) a

phase difference of signals measured at said plurality of spacings.

29. The method of claim 20 further comprising coupling a first processor associated with said orientation sensor and a second processor associated with the at least one resistivity sensor to a common bus.

30. The method of claim 20 wherein said orientation sensor comprises a magnetometer.

31. The method of claim 20 wherein said orientation sensor comprises an accelerometer.

32. The method of claim 20 further comprising using a gyroscope for providing a measurement indicative of an inclination and azimuth of said borehole.

33. The method of claim 20 further comprising determining a bias in said orientation measurements.

34. The method of claim 20 wherein said orientation sensor comprises a pair of magnetometers, the method further comprising determining a scale factor relating the outputs of the two magnetometers.

35. The method claim 20 wherein said resistivity sensor is mounted on one of (i) a pad, (ii) a rib, and, (iii) a stabilizer.

36. The method of claim 20 further comprising obtaining an image of said borehole.

37. The method of claim 36 further comprising correcting said image.

38. The method of claim 36 further comprising identifying tool face angles associated with a sticking of the BHA.